

## 9940-ACO • 3G/HD/SD-SDI Multi-Input Intelligent Auto-Changeover Switch with Optional Trouble Slate Inserter



The Cobalt® 9940-ACO 3G/HD/SD-SDI Multi-Input Intelligent Auto-Changeover Switch with Optional Trouble Slate Inserter allows manual selection of input, or failover to alternate inputs (Auto-Changeover) on loss of input conditions as well as user-configurable Video Quality Event intelligent assessments such as black/frozen frame or audio silence. Also included standard is closed captioning absence/presence detection for CEA 608/708 and line 21 SD closed captioning. Video Quality or Closed-Captioning event status can independently be propagated for each event type as GPIO, automated alert email, input routing changes, or card user presets you can configure to provide any number of special actions such as routing changes or burn-in text alert messages. A user trouble slate graphic file can be uploaded to the card, which in turn can be automatically inserted in active video if any Video Quality Event triggered errors occur.

Two discrete character burn strings can be inserted on output video, with each string inserted as static text and/or insert only upon LOS. Any of several standard test patterns can be inserted as an input LOS marker. A moving-box

insertion can serve as a dynamic raster confidence check even when the input video image is static. Timecode can be received and prioritized among any standard SMPTE embedded or audio LTC timecode, and in turn outputted and burned-in on the output video.

Preset save/load allows saving custom card settings while allowing one-button revert to factory settings. Layered presets allow invoking changes related only to a specific area of concern (audio routing, for example) while not changing any other processing settings or aspects. Full user DashBoard™ or Remote Control Panel remote control allows full status and control access locally or across a standard Ethernet network. GPIO allows direct input routing control and status monitoring.

### FEATURES

Multi-input, with manual selection or Intelligent Auto-Changeover failover. Latching relay bypass retains manual or failover input-to-output routing even in the event of power failure.

Intelligent Auto-Changeover can be set to invoke failover or alerts for basic input loss as well as intelligent failover/alert based on black/frozen frame or audio silence. Threshold and hold-off are user configurable.

Video Quality and Closed-Captioning Absence detection and flagging with GPIO, automated alert email, input auto-changeover, or engage custom user preset actions

Moving-box/motion insertion enable serves as a dynamic raster confidence check even in cases where the input video image is static

Optional Clean and Quiet Switching provides automatic audio muting during switching transitions from one SDI input source to another to provide silence between input switches

Dual independent burn-in text string insertion allows condition-based insertion (such as basic ID text for valid input and different text message for failover conditions)

Optional User Trouble Slate Graphic Import allows trouble slate to be displayed upon user-selectable input error conditions (such as CC or audio loss, or frozen frame)

Frame Sync with full H/V offset and manual/LOS video pattern generator

Timecode processing can prioritize, filter for, and convert between specific SMPTE embedded-video or audio LTC, with output/burn-in timecode using selected format

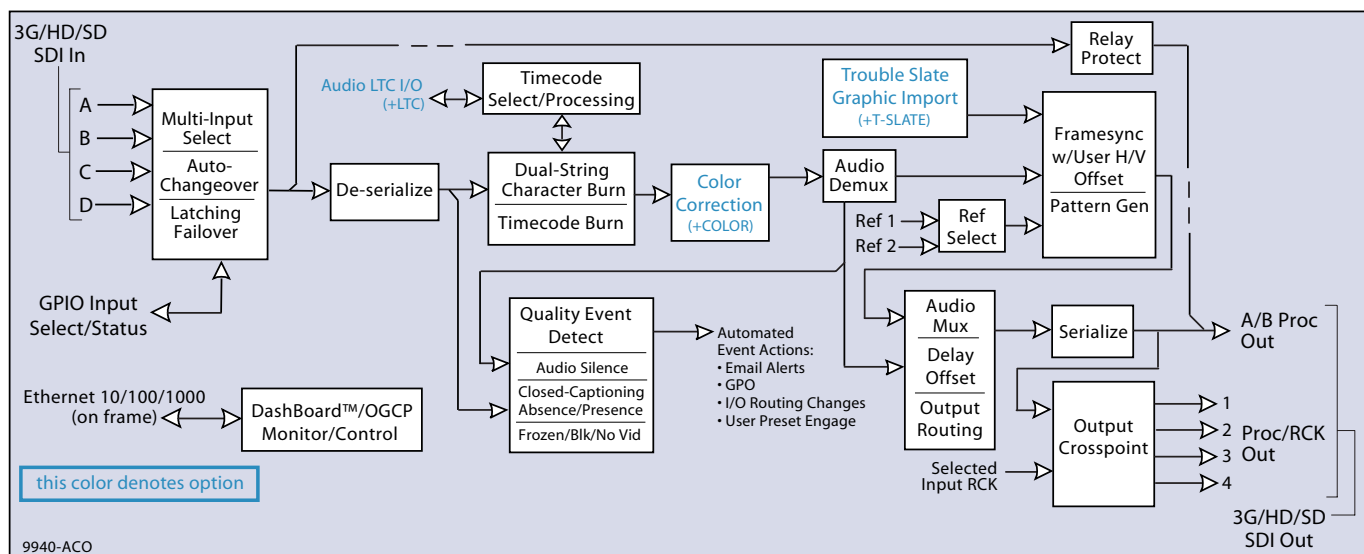
Full audio crosspoint with delay control and 5.1-to-stereo downmix available for all audio outputs

Low-power/high-density design – less than 18 Watts per card

Remote control/monitoring via Dashboard™ software or OGCP-9000 remote control panels

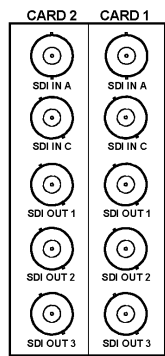
Hot-swappable

Five year warranty

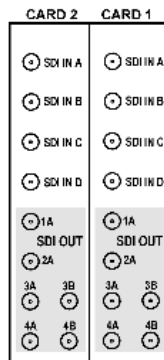


openGear

# 9940-ACO • 3G/HD/SD-SDI Multi-Input Intelligent Auto-Changeover Switch with Optional Trouble Slate Inserter



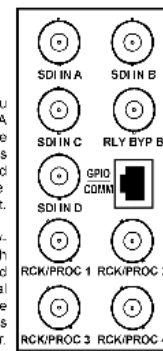
**RM20-9940-A/S**



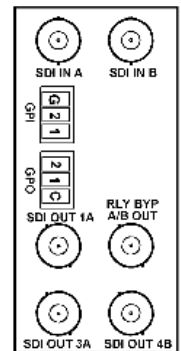
**RM20-9940-B/S-DIN**  
**RM20-9940-B/S-HDBNC**

Note: RCK/PROC 1 thru RCK/PROC 4 are DA outputs which can be individually set as reclocked or processed outputs of the currently-selected input.

RLY BYP B is a relay-protected path which carries processed SDI out under normal conditions and passive routes SDI IN B to this BNC upon loss of power.



**RM20-9940-C**



**RM20-9940-F**

## SPECIFICATIONS

Note: Inputs/outputs are a function in some cases of rear I/O module used.

**Power**  
< 18 Watts

### SDI Input/Outputs

Up to (4) 75Ω BNC inputs  
Up to (4) 75Ω BNC outputs (selectable as processed SDI IN or IN RCK)  
SDI Formats Supported: SMPTE 259M, SMPTE 292M, SMPTE 424M  
SDI Receive Cable Length: 3G/HD/SD: 120/180/320 m (Belden 1694A)  
SDI Return Loss: >15 dB up to 1.485 GHz; >10 dB up to 2.970 GHz  
SDI Alignment Jitter: 3G/HD/SD: < 0.3/0.2/0.2 UI  
Minimum Latency (frame sync disabled): SD: 127 pixels (9.4 us); 720p: 330 pixels (4.45 us); 1080i: 271 pixels (3.65 us); 1080p: 361 pixels (2.43 us)

### Input Select/Auto-Changeover Failover

Manual selection (forced) of any input.  
· Failover to alternate input on loss of target input. Failover invoked upon LOS and/or (with option +QC) user configurable parametric criteria such as black/frozen frame or audio silence.  
· Relay bypass SDI IN B to RLY BYP B upon loss of power.

### GPIO/COMM

(2) GPI configurable to select input routing. (2) GPO configurable to invoke upon input selected. RS-232/485 comm port.

### Frame Reference Input

(2) reference from frame bus. SMPTE 170M/318M "Black Burst", SMPTE 274M/296M "Tri-Level".

## ORDERING INFORMATION

**9940-ACO** 3G/HD/SD-SDI Multi-Input Intelligent Auto-Changeover Switch with Optional Trouble Slate Inserter

**RM20-9940-A/S** 20-Slot Frame Rear I/O Module (Split; supports 2 cards) (2) 3G/HD/SD-SDI Input BNC, (3) 3G/HD/SD-SDI Processed or Reclocked Output BNCs (connections are per Card 1 and Card 2 connector banks)

**RM20-9940-B/S-DIN** 20-Slot Frame Rear I/O Module (Split; supports 2 cards) (4) 3G/HD/SD-SDI Inputs, (6) 3G/HD/SD-SDI Outputs (Connections are per each Card 1 / Card 2 connector bank; all coaxial connectors DIN1.0/2.3)

**RM20-9940-B/S-HDBNC** 20-Slot Frame Rear I/O Module (Split; supports 2 cards) (4) 3G/HD/SD-SDI Inputs, (6) 3G/HD/SD-SDI Outputs (Connections are per each Card 1 / Card 2 connector bank; all coaxial connectors HD-BNC)

**RM20-9940-C** 20-Slot Frame Rear I/O Module (Standard Width) (4) 3G/HD/SD-SDI Input BNCs, (4) 3G/HD/SD-SDI Output BNCs, (1) 3G/HD/SDI Output BNC (with relay bypass failover), (1) GPIO/COMM RJ-45 connector

**RM20-9940-F** 20-Slot Frame Rear I/O Module (Standard Width) (2) 3G/HD/SD-SDI Input BNCs, (1) 3G/HD/SD-SDI Processed Out BNC w/ Latching Input Select/Bypass, (3) 3G/HD/SD-SDI Output BNCs (GUI-selectable as processed or reclocked of selected input, (2) GPI, (2) GPO

+**T-SLATE** User Trouble Slate Graphic Import Option

+**CQS** Clean and Quiet Switching Option

+**COLOR** Color Correction Option

+**LTC** Audio LTC I/O Option